

Installation
Instructions
& User Manual

POWERWARE TVSS

ZONEMASTER ALL-MODE®

AC Panel Transient Voltage Surge Suppressors



INTRODUCTION

This document explains how to install the *Powerware TVSS ZoneMaster All-Mode*[®] AC Panel Surge Protection Devices.

INSTALLATION INSTRUCTIONS

Warning: Terminals marked L1, L2, L3, N, GND (where relevant) must be connected respectively to phase(s) neutral and ground. Failure to comply may result in danger or damage. See corresponding diagrams for proper connections.

INSTALLATION DESCRIPTION

Powerware TVSS ZoneMaster All-Mode[®] units are connected in parallel (or in "shunt") across the supply to be protected. The connecting cable does not carry the supply current, only the current associated with suppressing the transient overvoltage.

MOUNTING

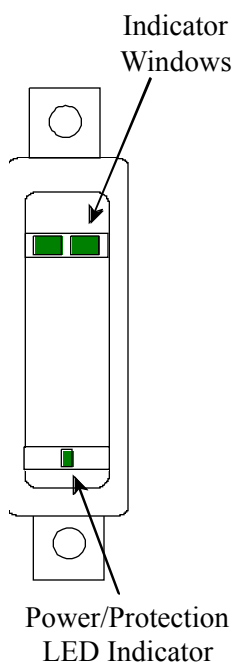
The units should be mounted **as close as possible** to the panel to be protected. See (page 4) on Connecting Lead lengths. Conduit, preferably metallic, is to be installed from the suppressor to the panel. Drill holes in the *Powerware TVSS ZoneMaster All-Mode*[®] enclosure only in the designated areas as shown in recommended cable dressing illustrations (page 5). Mount the unit in the appropriate location using the mounting holes provided on the enclosure.

INCORRECT INSTALLATION WILL IMPAIR THE EFFECTIVENESS OF THE AC PANEL PROTECTORS.

Particularly important is the length of the connecting leads (see pages 4 & 5).

STATUS INDICATORS

The **Powerware TVSS ZoneMaster All-Mode®** units have comprehensive, continuous visual status monitoring present on each module.



Status Indicated	Full Protection Present	Reduced (Standby) Protection	No Protection	No Power To Protector
Indication Windows	Both Windows Show Green	One Window Shows Black	Both Windows Show Black	Both Windows Show Green
LED Indicator	Green LED Lit	Green LED Lit	Green LED Out	Green LED Out

Note: Phase to ground modules do not have LED indicators

REMOTE INDICATORS

A remote indication of the reduced protection state is available as a normally open or normally closed dry contact.

WARNING: HIGH NEUTRAL TO GROUND VOLTAGE INDICATION

On all models with N+G modules, a RED warning light is provided. Should this light glow RED at any time, consult a qualified electrical contractor to check the integrity of the building wiring. This RED light does not indicate suppressor failure, however a RED glowing light is indicative of potentially hazardous site wiring.

CONNECTING LEADS

Connect the suppressor as shown in the installation diagram. Refer to page 5 for recommended cable dressing. Connect the terminals within the suppressor to the load side of 60A breakers or fuses within the panel. See specific connection diagrams for more details and markings on unit if provided.

RECOMMENDED WIRE GAUGE

Minimum of 8 AWG

Maximum of 4 AWG (for ease of dressing)

LENGTH OF CONNECTING LEADS

The longer the connecting leads between the the *ZoneMaster All-Mode*[®] and power panel, the higher the residual transient voltage.

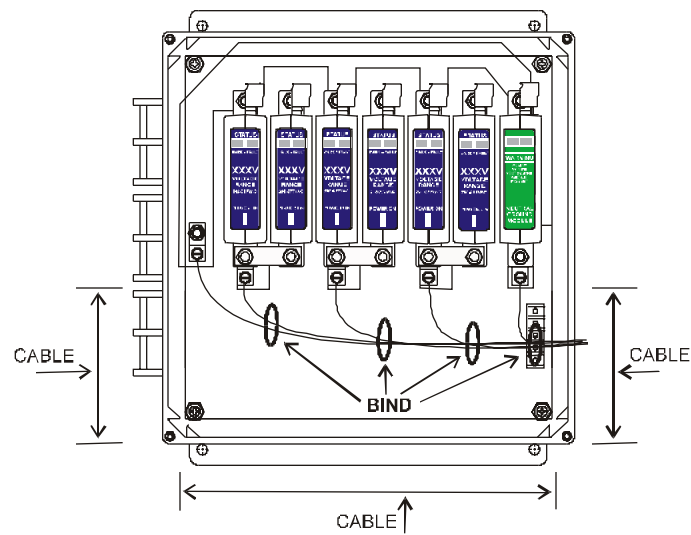
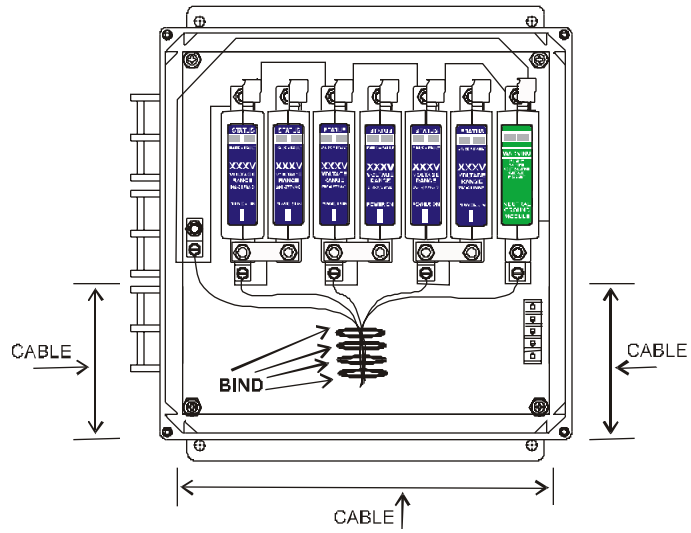
RECOMMENDED MAXIMUM: 500mm (19")

IDEALLY: 250mm (10")

Each 250mm increase in cable length increases clamping voltage by 25V per 1000A surge current discharged.

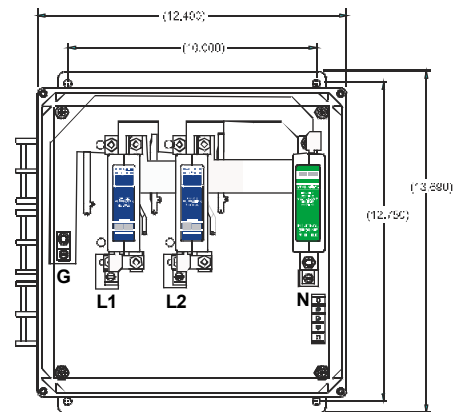
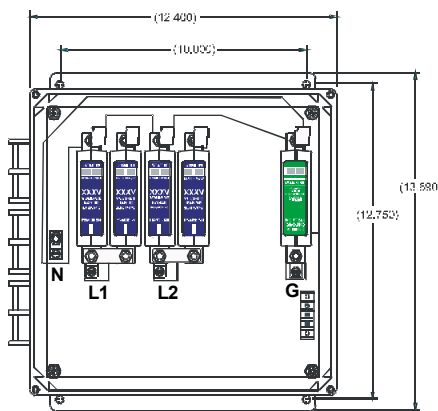
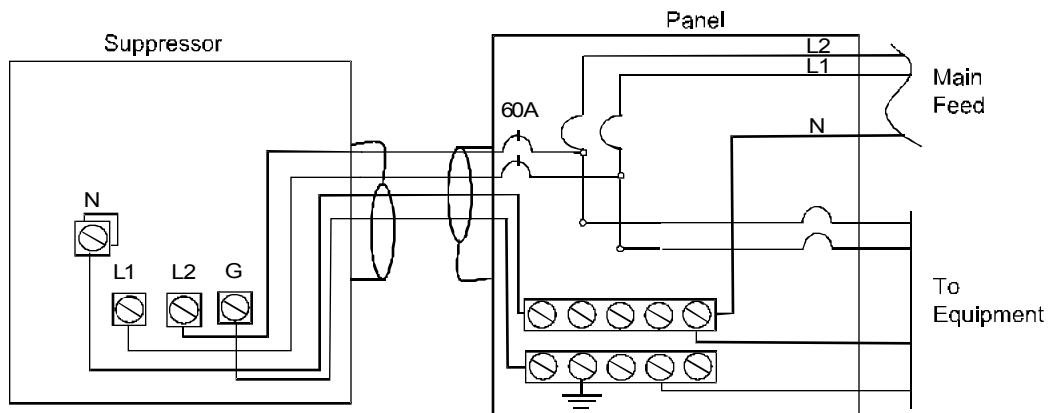
- **BIND THE PHASE NEUTRAL AND GROUND CONDUCTORS TIGHTLY, OVER THE ENTIRE RUN FROM THE SUPPRESSOR TO THE SERVICE PANEL.**
- **ALWAYS USE THE SHORTEST LENGTH OF CONNECTING CABLE POSSIBLE.**

RECOMMENDED CABLE DRESSING



POWERWARE TVSS **ZONEMASTER ALL-MODE® Configuration** and Schematic Connection Diagrams

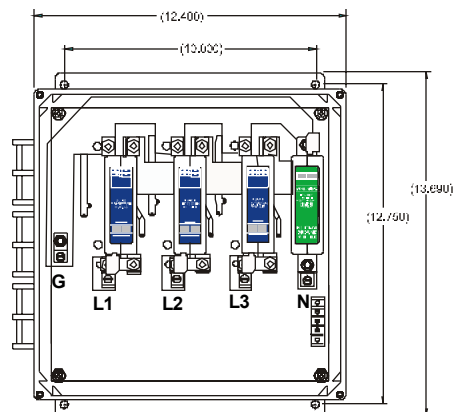
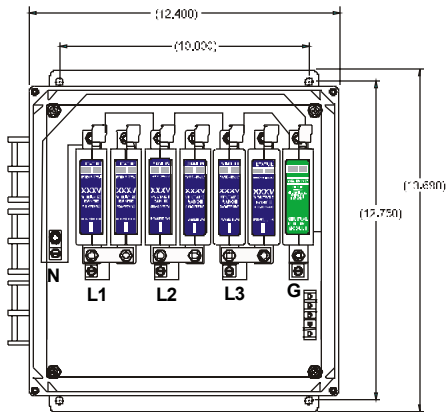
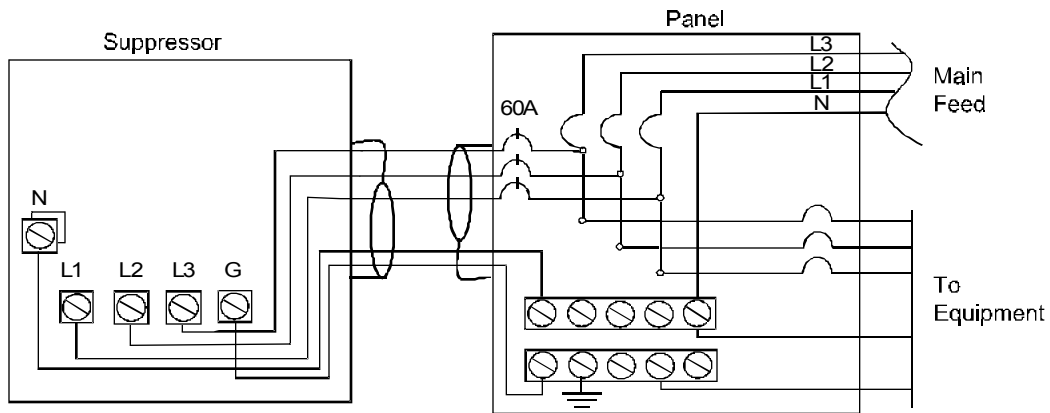
120/240V SPLIT PHASE 3W



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ZONEMASTER ALL-MODE[®] Configuration and Schematic Connection Diagrams

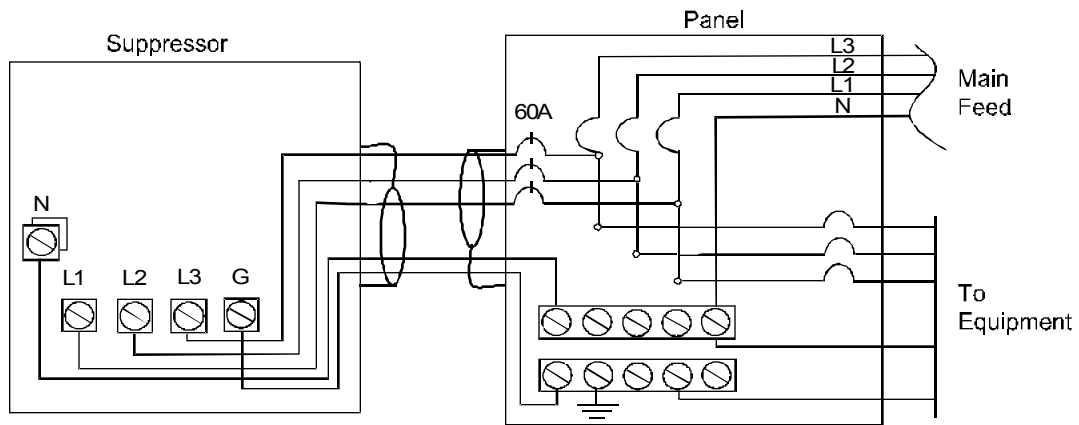
120/208V THREE PHASE 4W WYE



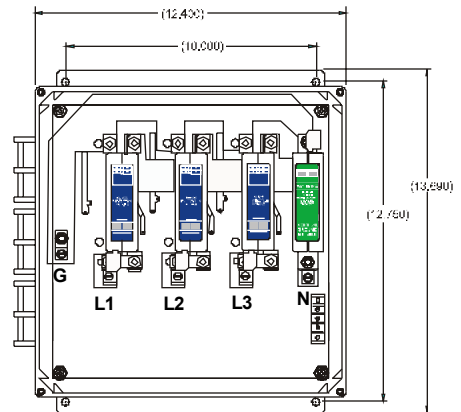
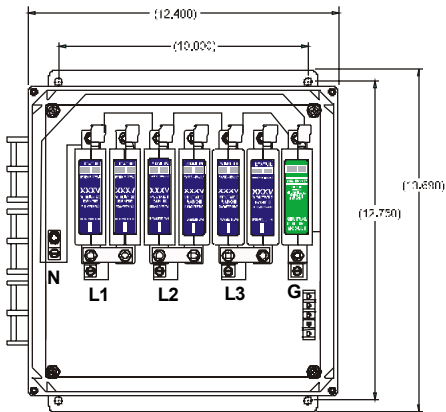
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ZONEMASTER ALL-MODE[®] Configuration and Schematic Connection Diagrams

120/240V THREE PHASE 4W HIGH LEG DELTA



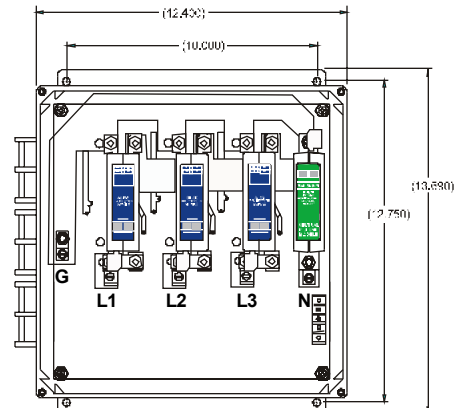
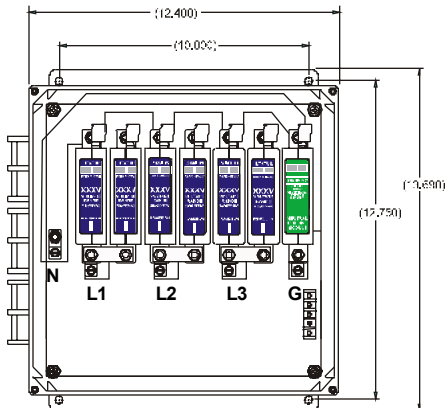
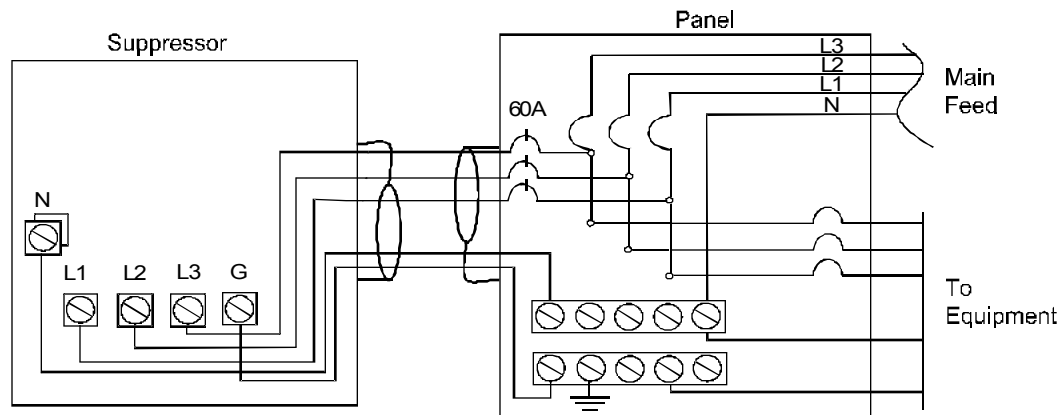
NOTE: L2 is designated as the "HIGH LEG"



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ZONEMASTER ALL-MODE[®] Configuration and Schematic Connection Diagrams

277/480V THREE PHASE 4W WYE
240/415V THREE PHASE 4W WYE
220/380V THREE PHASE 4W WYE



MAINTENANCE

At intervals not exceeding two months, check:

1. Status indication lights
2. Conditions of connecting cables and terminals

Module Replacement

WARNING: Before opening the access panel, ensure that the AC supply has been disconnected.

Unplug the remote contact connector at the top of the module. Remove the mounting nuts at the top and bottom of the module. The protection module can now be removed.

WARNING: Replace the defective module with a module having the same color label and voltage rating.

Installation of the replacement module is the reverse of the above procedure. Final step, check that all cable connections are secure and nuts are tightened. Do not overtighten.

NOTE: No customer serviceable parts inside. Opening module WILL void Warranty



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